

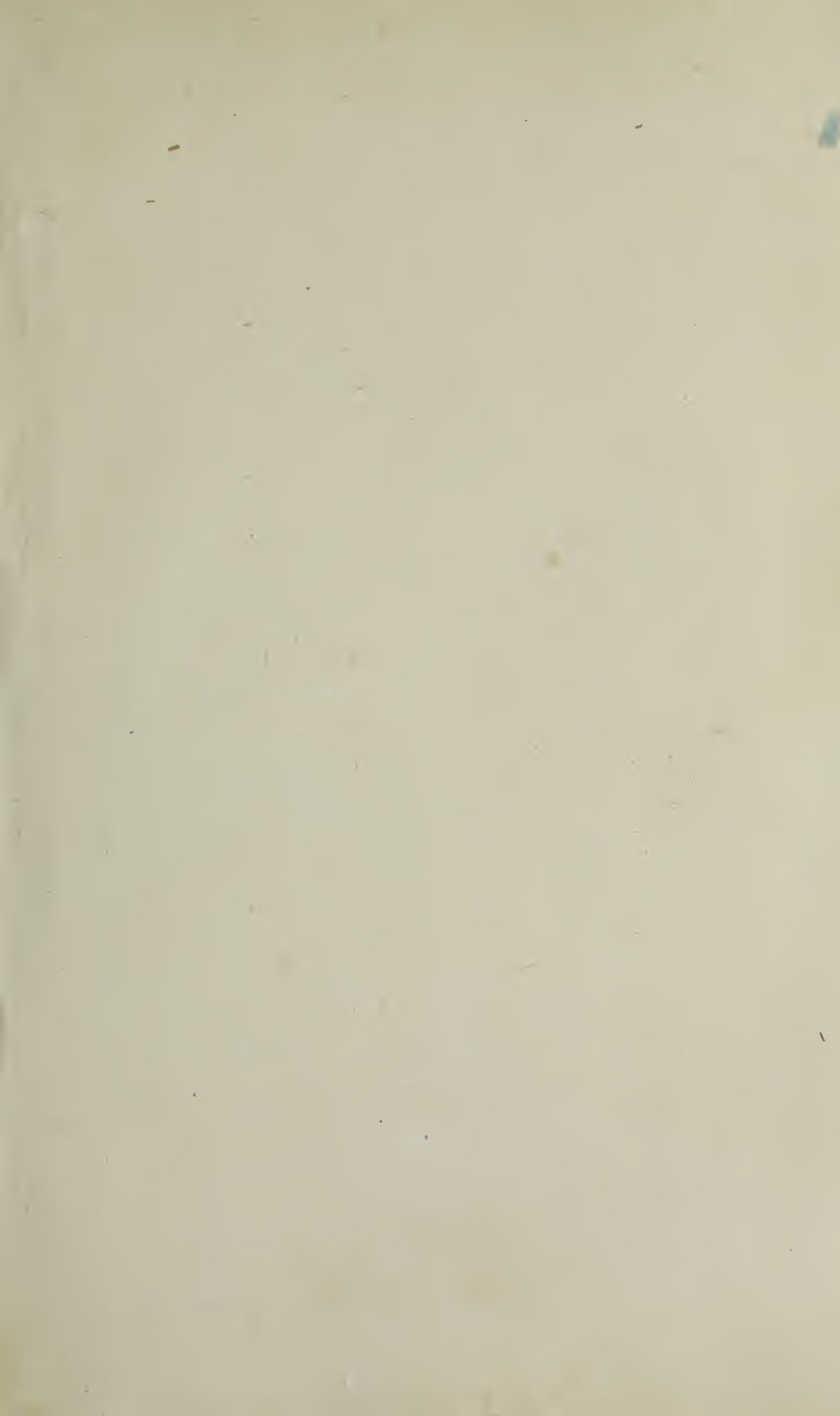


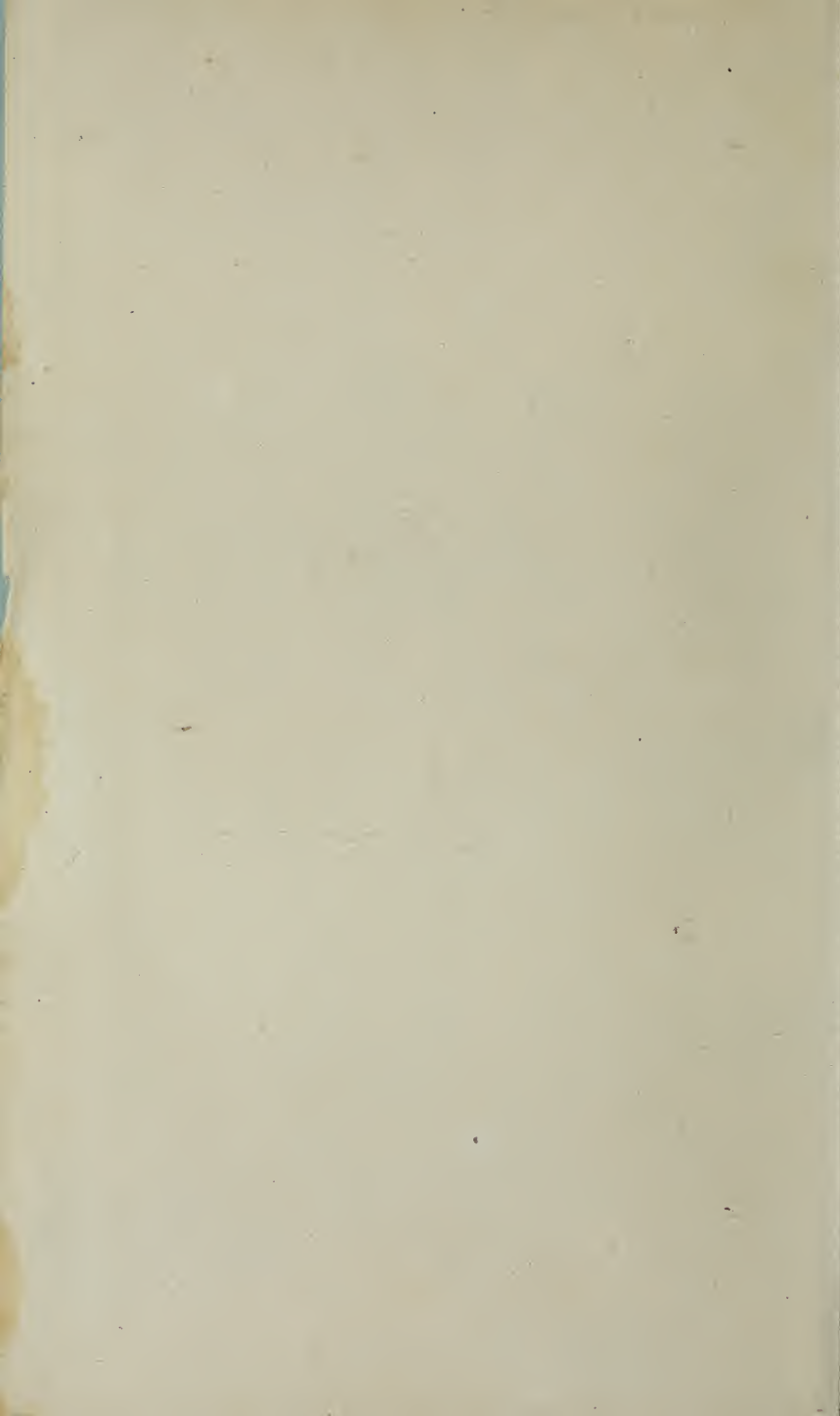


Pearce Hawkey  
photographer  
12 Herbert St  
Salem Mass  
North America  
~~~~~  
January 1870

Massachusetts  
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CHARLES D. FREDRICKS, ESQ.

Photographed expressly for "The Secrets of The Dark Chamber."



SECRETS  
OF THE  
DARK CHAMBER,

BEING

Photographic Formulæ,

AT PRESENT PRACTICED IN THE GALLERIES OF MESSRS.  
GURNEY, FREDRICKS, BOGARDUS, ETC.,

OF NEW YORK CITY,

NEVER BEFORE PUBLISHED;

TOGETHER WITH FULL AND SIMPLE DIRECTIONS FOR  
MAKING PHOTOGRAPHIC CHEMICALS.

---

COMPILED BY

D. D. T. DAVIE.

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New York:

JOSEPH H. LADD, PUBLISHER.

LONDON: TRÜBNER & CO.

—  
1870.

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Entered, according to Act of Congress, in the year 1869, by

JOSEPH H. LADD,

In the Clerk's Office of the District Court of the United States for the  
Southern District of New York.

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## PREFACE.



IN presenting this series of formulæ to the photographers and amateurs of this country, I do so, knowing that very many books, pamphlets, and journals devoted to teaching Photography have preceded it. It has not been my intention to write a book, nor elaborate or theorize, but merely to scan over the ground, and note such points only as will be useful to the practical operator and amateur.

Nor do I flatter myself that I have introduced any *remarkable* inventions, improvements, or novelties. What I aimed to do I believe I have fully accomplished.

In addition to the foregoing, will be found reliable receipts for making several of the leading chemicals used in Photography ; such as chloride of gold, nitrate of silver, varnish, etc., etc., the genuineness of which I can vouch for myself, having had thirty

years' constant practice in that branch. Each chemical, for the making of which a receipt is herein given, can be successfully made by any photographer, if he will follow closely the instructions given.

My object in presenting this work has been to gather up the knowledge of our most experienced and successful photographers, and impart it to those who have less opportunities to get the improvements.

Through the kindness and generosity of our most distinguished New York photographers, I have been permitted to explore their dark chambers, and to copy their formulæ; and it is but proper to state, that all of the formulæ inserted in this work are direct from the head men of the various departments of Messrs. Fredrick's, Gurney's, and Bogardus's establishments, given with great care (with the privilege of using their names) expressly for this purpose. It has often been said that photographers, as a general thing, are very selfish and self-conceited, but in the Messrs. Gurney, Fredricks, and Bogardus, and their experienced workmen, I have found an honorable exception to this rule. When I called on Mr. Hugh O'Neil, the partner of C. D. Fredricks, No. 587 Broadway, and principal operator in that establishment, and told him that I intended to publish a book of recipes for the benefit of

country photographers, and requested him to give me his formulæ for silvering paper and toning prints, his reply was: "Certainly, I will do so, if it will be of service to you or the fraternity;" and still further, he freely offered me access to his various working departments, to satisfy myself of the genuineness of his method of working. By the Messrs. Gurney and Bogardus I was treated in the same liberal manner, and to those gentlemen we are principally indebted for the photographic knowledge herein contained.

I entered upon this work with a determination to compile the best and most economical system of Photography ever published in this country, and I believe I have done so.

I have passed over the fertile fields of photographic knowledge, and from each have culled their best points, and have embodied those points in what, I trust, will be found a concise, simple, economical, harmonious, and *perfect* system of Photography.

To prevent confusion and unnecessary experimenting, I have only given *one* formula for each process, and that the best known in New York. In conclusion, I will state that I believe I have accomplished all I undertook in this matter, and hope that the

work may be useful to my brother photographers. Having done this, I believe no one will question the propriety of christening this effort "Secrets of the Dark Chamber."



## LETTER FROM J. H. HALLENBECK.

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NEW YORK, *October 29*, 1869.

*Friend Davie*:—Allow me to congratulate you for the able manner in which you have conceived and executed the new book entitled *Secrets of the Dark Chamber*, for the formulæ and information contained therein were indeed *secrets*, and the photographic fraternity owe you their most hearty thanks for placing within their reach information which money could not before purchase, and which will enable all to produce works of art unexcelled in the world. I say *world*, from the *fact* that the work produced by our countrymen, Gurney, Fredricks, Bogardus, Jordan, Brady, and others of this city, stand unrivaled; even the beautiful gems sent to this country by the great artist, Salomon, fall far behind those produced in some of our New York studios. The photographers have long felt the need of just such a book, but there was none to fill the void until you once again, as in the days

of old, put your shoulder to the wheel, and *turned out* the valuable information which had been hidden from the outside world. I have conversed with some of our best artists, and all seem to think the book will be a success; one and all are on the *qui vive* for its appearance. As I have seen the proof sheets, I can promise all a treat in the way of a condensed, practicable, valuable set of recipes; there is no twice-told tale, but only one formula for each process; all who get those published in the *Secrets of the Dark Chamber* will need no other; if any wish to know what Davie can do when he is in *working order*, I refer them to the Carte Imperiale of Gurney, published in the October number of *Humphrey's Journal*.

Hoping that my photographic brethren may *all get the book*, I remain yours, etc.,

JOHN H. HALLENBECK.

# SECRETS

OF THE

## DARK CHAMBER.

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### CLEANING GLASS.

MIXED acid, nitric and sulphuric, equal parts, is best for this purpose, especially for such glass as has been used. Combine the acids in a flat dish, large enough to receive the glass, and immerse for one or two hours ; then remove the glass from the acids, and wash well under a running stream of water ; let it drain slightly ; then flow it with a solution made of pure water, 1 pint, and albumen, or the white of one fresh egg, well beaten before adding it to the water ; to this add 2 drachms of concentrated ammonia, and filter. After flowing the glass, drain the

surplus solution back into the bottle, and stand the glass on one corner to dry, in a room free from dust.

By preparing your glass in this way you lose nothing, but gain the advantage of being certain of clean glass, and save the laborious task of scouring with rotten-stone.

Besides, glass prepared in this way will keep an indefinite length of time.

If the two acids can not be obtained, either will do alone, but the action is much slower; and if you are so situated that neither acid can be obtained, common soft-soap and water, in equal parts, will answer quite as well, but much slower.

After your glass prepared in this way is thoroughly dry, put it into a clean, tight box for use. By this method of preparing glass there are two decided advantages gained; one is a certainty of clean glass, and the other is a great saving of labor, and your glass is always ready *for use*.

## MAKING THE NEGATIVE SILVER BATH.

To 10 ounces of pure water add 45 grains nitrate of silver, and 10 drops acetic acid, and filter as often as is necessary.

After using this bath for several days, it will be necessary to boil it down, to remove all foreign accumulations. A large porcelain evaporating dish is best for this purpose ; add as much water as there is of the solution, then boil it down to one-half of its original quantity, and allow it to cool ; when cold, reduce it with water to its requisite strength ; filter, and it is ready for use, by adding the requisite amount of acid.

## TO MAKE COLLODION.

Ether and alcohol.....	equal parts.
Iodide of ammonium .....	4½ grs. to oz.
Bromide of cadmium.....	2½ “
Cotton.....	6 “
Davies's accelerator .....	5 drops to oz.

The accelerator should be added only in small quantities, as often as the collodion is required for use. It is also safe to iodize the ether and alcohol, which will not deteriorate, and keep it in this way ready for use. The

cotton to be added one or two days previous to using.

By adhering to this formula and simple recommendation, you will never fail to have good collodion. If it is necessary at any time to use an old or stale collodion, add to each ounce 10 to 15 drops of Davies's accelerator, which will invigorate the action very materially.

#### TO MAKE THE DEVELOPER.

Water, 16 ounces; protosulphate of iron, 1 ounce; acetic acid, 3 to 5 ounces, according to the temperature of the weather; 3 ounces in the hottest, and 5 ounces in the coldest weather.

Great care should be taken in graduating the developer with the protosulphate of iron, so as to avoid too quick action on the negative.

When it is necessary to redevelop, use pyrogallie acid, 10 grains; citric acid, 10 grains; water, 10 ounces; and add to this 10 drops of a 50 grain silver solution.



## FLOWING THE GLASS WITH COLLODION.

In performing this operation, the glass should be held by one corner in nearly a horizontal position, so as to allow the collodion when poured on, to spread over the plate as rapidly as possible.

When enough collodion is on the glass, tip it gradually so as to cover the surface as rapidly as possible, draining the surplus collodion back into the bottle, and continue a gentle rocking of the glass, until the collodion is set.

## IMMERSING THE PLATE IN THE SILVER BATH.

If your bath has stood over night, and is to be used without filtering, remove the scum from its surface with a clean piece of blotting paper; common filtering paper will do as well.

Stir up the solution well, and allow it to subside one or two minutes before dipping the plate. Immerse the plate with a gentle downward motion until it is covered, and use care not to allow it to strike heavily on the bottom of the bath. Allow the plate to remain in the bath until iodide of silver is formed, which can be determined by lifting it gradually and examining the color. As soon as it has become

a creamy white, remove it at once, for if allowed to remain in, its sensitiveness will be injured.

#### TIMING IN THE CAMERA.

The timing of negatives in the camera is very essential. There are two methods for this process; one is to overtime until the effect of light and shadow has been completely destroyed, and by a still longer extension of time, partially restored again; the effect of longer time being to work the shadows more, and render them more opaque and slower to print.

This is the old style of negative, requiring from thirty minutes to two and a half hours, in a strong sunlight, to print each proof. The other kind is where light is shut off as soon as the first negative effect has taken place, which is about one-half the time given to the former. This negative will print in four to eight minutes, giving much finer half-tones than the former, and the print will be rounder and finer in every respect. Make the time of exposure in the camera as short as can be, and have the shadows sufficiently subdued to give the half-tones properly.

## DEVELOPING THE NEGATIVE.

In pouring the developing solution on the negative plate, take care to hold it so that the solution will flow quickly over the entire surface. As soon as the image is visible, watch it closely, and as soon as you see it sharp and round, and can see the half-tones distinctly, discontinue the operation at once, for over-developing is quite as disastrous as over-exposure in the camera. When necessary redevelop after the negative has been well washed.

## VARNISHING NEGATIVES.

The plate requires gentle warming before the varnish is applied ; if in summer, place it in a strong sunlight for a few minutes, or warm it over a hot stove or lamp. Flow the plate carefully, and pour the varnish back into the bottle. As soon as the varnish is set, place the negative back in the hot sun, or dry the varnish perfectly hard over a stove or lamp.

## SILVERING SOLUTION FOR ALBUMEN PAPER.

Water, 16 ounces ; nitrate of silver, 560 grains ; muriatic acid, 45 drops ; shake well, then neutralize with liquid ammonia. Again shake well, filter, and it is ready for use. Every three or four days add to this solution 2 or 3 drops of muriatic acid. Float from thirty to sixty seconds, according to the temperature of the weather, and fume in the ordinary way.

Replenish as often as is necessary with the above proportions.

For filtering, procure heavy filtering paper, and use the same filter for months, or even years, if it will last so long.

## FUMING THE SILVERED PAPER.

The silvered paper should be well dried before it is placed in the fuming box. Any kind of a tight box will answer for this purpose, so long as it is large enough to suspend the sheets of paper so that the ammonia vapor can pass freely between the sheets.

When the paper to be fumed is properly adjusted in the box, pour two tablespoonfuls

of ammonia on an earthen plate ; place it under the paper and shut the box tight ; let it remain ten minutes, then remove the ammonia and pour it back into the bottle, and the paper is ready for printing.

#### PRINTING PHOTOGRAPHS.

All that is necessary to be said on this subject can be said in a few words.

Dust the face of the negative when you place it in the frame, and clean the back well.

See that the joint in the back board closes tight and even. Be sure and get the contact perfect before exposure to light. Pure rubber cloth, quite thick, makes an excellent packing. Light color is best. The 4-4 size costs about sixteen cents. Allow as little exposure to light while printing as possible, and place prints in a dark box as soon as they are taken from the frame. Diffused light should always be used for removing prints and putting the paper in the frame,—in this particular, too great care can not be used.

## WASHING THE PRINTS.

This operation should also be performed in diffused light.

Profuse washing is necessary to remove all of the unchanged or free silver from the prints ; several waters, at least, are necessary ; and each time a large quantity, especially the last washing.

## TONING THE PRINTS.

Put the requisite quantity of water in a photographic ware or porcelain toning dish, and add to it a sufficient quantity of common washing soda, to make it feel slippery to the fingers, say about 60 grains to the pint ; then add the chloride of gold, and test with litmus paper, to see if it is alkaline ; if not, add soda, until it is quite alkaline ; not too much, for that will also retard.

If rapid toning is desired, use warm water, and keep the solution warm until the prints are all toned.

The simplicity of this process is its highest recommendation, and its certainty to tone well and rapidly at all times is beyond a doubt.



As fast as the prints are toned place them in clean water, and let them remain there until the toning is finished.

#### FIXING THE PRINTS.

For fixing prints, use a strong solution of hyposulphite of soda, nearly to saturation, say 8 ounces of hypo. to 32 ounces of water. Place the prints in this solution, one by one, using care that no air bubbles are left between them. Change them two or three times while fixing, by pulling them from the bottom, one by one, and placing them on top, covering each print with the solution before placing another on top of it. As soon as they are clear, or properly fixed, remove them to the water tank. The time required for this operation will be from ten to twenty minutes, according to the temperature of the weather.

## WASHING OUT THE HYPOSULPHITE.

For this purpose it is necessary to have a large tank with a screen to fit the inside of the tank, resting on blocks, one inch from the bottom, and netted over with twine in half-inch meshes. The screen holds the prints from the bottom of the tank, and facilitates the washing. Discharge the water from the tank by means of a plug at one end.

This arrangement is good for a small as well as a large business, and may be constructed on a small scale very cheaply.

Put the prints in the tank ; separate them well, and change the water at least four times ; then let them remain in fresh water over night ; change the water next morning, and take them out, and hang them up to dry ; not by throwing them across a line ; for in this way they are liable to stain, where they come in contact with the line ; for this purpose use clothes-snaps fastened to a line, and catch the print by one corner with the snap, or if the print is large, use two snaps.

## TRIMMING THE PRINTS.

Cartes de visite and all small prints had better be trimmed before they are toned ; it is much more economical ; by this means, you save toning all that is trimmed off, and also save the silver in the clippings. If the trimming is done before toning, let it be done with as little light as possible, either by artificial or very subdued daylight, or, if convenient, light admitted through brown-stained glass.

## MOUNTING PRINTS.

The best paste in use for the purpose of mounting prints is made from common starch in the following manner :

Dissolve 1 tablespoonful of starch in 2 spoonfuls of water ; then pour into it 2 gills of boiling-hot water, and stir it well ; place it on a hot stove, or over any other heat, and stir it continually until it boils, or has turned to a gelatine. This paste has sufficient adhesion, and is economical ; but the principal advantage in using it is, that it never shows on a print, and gives clean work.

## FORBES'S FORMULÆ.

GURNEY'S GALLERY,  
FIFTH AVENUE AND 16TH STREET, }

NEW YORK, *October 29, 1869.*

MR. D. D. T. DAVIE.

*Dear Sir*:—In answer to your letter of inquiry dated the 26th inst., as to how I make my collodion, negative bath, etc., I will state that in making collodion I use ether and alcohol in equal parts. Iodide of ammonium, 5 grains to the ounce; bromide of cadmium,  $1\frac{1}{2}$ ; bromide of ammonium,  $1\frac{1}{4}$ ; cotton, 5 to 7 grains to the ounce.

I have tried many formulæ, none of which work as well with me as the one above given.

I keep my negative bath as near 40 grains to the ounce as possible, slightly acid, occasionally reducing it one-half, or thereabouts, and boil it down to something less than the original quantity; I then reduce to its proper strength, filter, etc.

In developing, I use simply protosulphate of iron, dissolved in water; 25 grains of iron to the ounce of water.

In very warm weather I use my developer of even less strength than the above.

In this way I find my chemicals harmonize, one with the other, and my negatives (such as they are) are uniform, and are produced without the least uncertainty.

I keep my room uniformly warm day and night, at a temperature of about 70°. Having answered your questions to the best of my ability and with pleasure, you are at liberty to make such use of them as you think proper; and I assure you, my friend, that if I can do anything further to assist you in perfecting your valuable forthcoming work on Photography, it will be my pleasure to aid you all I can.

Hoping you will find my answers satisfactory, I remain very truly yours,

JAMES L. FORBES,

With Messrs. J. Gurney & Son.

The negative process above published from the pen of Mr. J. L. Forbes, the negative maker, with the Messrs. J. Gurney & Son, will, no doubt, attract its full share of attention, inasmuch as those beautiful portraits of J. Gurney, Esq., that so recently adorned *Humphrey's*

*Journal of Photography*, were printed from negatives made by him in the manner herein described. Those prints were made from eight different negatives, and the negatives were made at eight successive sittings, and in less than one hour's time.

Mr. Forbes is but a young man, trained to the business from boyhood by Mr. Gurney. Notwithstanding his youth, his success in the negative room is not surpassed by any.



## EDWARD KRUSE'S FORMULÆ.

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BOGARDUS'S GALLERY, }  
BROADWAY, NEW YORK, }  
October 28, 1869.

MR. D. D. T. DAVIE.

*Dear Sir:*—In compliance with your request, I herewith send you my method of printing plain paper, which is very simple; nevertheless, if it will add, in the least, to the interest of your choice book of formulæ, you are at liberty to place it there. Yours truly,  
EDWARD KRUSE.

## PLAIN PAPER PRINTING.

I am using the Steinbach paper, and consider it the best in market for plain prints, which I prepare in the following manner:

## SALTING SOLUTION.

Water, 1 quart; chloride of ammonia, 60 grains:

Place two sheets of paper, with the backs together, and in that way pass them three times through the solution, and let them remain one minute immersed; then remove,

and hang them up to dry ; distinctly mark the salted side, so as to avoid mistakes in silvering. In salting, observe that the right side of the paper is outward.

#### SILVERING THE PAPER.

Water, 8 ounces ; nitrate of silver, 1 ounce.

Pour off 2 ounces of the solution, and add to the 6 ounces liquor ammonia (a few drops at a time), which will, at first, brown it, and continue to add the ammonia, and stir with a glass rod, until it becomes clear again.

Having done this, pour the 2 ounces back with the 6 ounces, which will again brown the whole. Filter through strong filtering paper, and it is ready for use. The same filter may be used for months, until it breaks.

#### TONING AND FIXING PRINTS.

Water, 1 quart ; hyposulphite of soda, 8 ounces ; chloride of silver, 60 grains ; chloride of gold, 15 grains.

Immerse the prints in this solution (without washing) about ten minutes, or until they are properly fixed and toned ; then wash in water in the same way as albumen prints are washed.

I apply the silver to the paper, by pouring the requisite quantity on the paper, and spreading it uniformly over the sheet with a pellet, formed by winding prepared cotton around the bottom of a bottle, with the bottom knocked out.

In spreading the silver on the paper, rub it very lightly, and as little as possible, and at the same time be careful and pass all over it.

I have tried all of the various methods of plain paper printing, but like the foregoing best of any. E. K.

Many thanks are due to Mr. Edward Kruse for his valuable contribution to our book.

No one in this country has had more experience in that branch of Photography than he has, and none have operated with more certainty, and none have produced better work.

For ten years past he has been with Mr. Bogardus, constantly devoting his time to plain paper printing, using some days sixty and eighty sheets of paper. His prints are uniformly strong, brilliant, and beautiful, and it is to be hoped that his process will work as well in the hands of others as in his own.

HALLENBECK'S FORMULÆ.

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We are indebted to Mr. J. H. Hallenbeck for the following formulæ, which he has thoroughly tested, and is confident will give good results. Mr. H. is a well-known amateur of New York, and devotes all his spare hours and a good deal of money to experimenting in the art we all love so well. We give his own language, as follows :

Knowing, as I do, the great interest you take in the photographic art, and the time, money, etc., spent by you in your endeavors to place before the photographic fraternity the best information appertaining to the same, I feel it my duty to aid you in every way in my power, ever so trifling though it be. Therefore I send for your consideration the following items, which I hope will be of interest to my colaborers in the photographic art.

In the first place, please find a

FORMULA FOR COLLODION,

which will work in one quarter the time of ordinary collodions.

Alcohol, 95 per ct.. 7 ozs.

Cotton..... 6 grs. (Davies's Instantaneous.)

Ether, concentrated.  $5\frac{1}{2}$  ozs.

Bromide of potass..20 grs, dis'v'd in few drops water.

Iodide Lithium....10 “

Iodide Sodium ....35 “

Then add 5 drops of a saturated solution of bromide of arsenic in alcohol.

The above collodion should stand two days before using.

The bath should never be under 40 or over 50 grains of silver to the ounce, and just acid enough to turn litmus paper slightly red after one minute's immersion. Glacial acetic acid is believed to be the best, but I prefer C. P. nitric, diluted as follows: To 1 ounce of water add 10 drops of acid. Now with a glass rod drop one drop at a time until the bath is acid enough. Of course, the solution should be tested after every drop. If too much acid is present in the bath, the time of exposure is greatly increased.

The developer for the collodion is as follows:

15 ozs. water.

$\frac{1}{2}$  oz. sulphate of iron and ammonia.

$\frac{1}{2}$  “ “

$1\frac{1}{2}$  oz. acetic acid.

I prefer fixing the negatives in hyposulphite of soda. If any after-intensifying is necessary for copies, etc., use the uranium intensifying solutions. All stock dealers have it. The plate should be well washed before using the above. For varnish I prefer diluted albumen. It can always be found when wanted, and stands the wear well.

I will now give the names of some of the various accelerators used in collodions. As some of them will not keep well, enough only should be mixed for the day's use.

A drop of a saturated solution of gallic acid in alcohol to the ounce of collodion.

A drop of pure cod-liver oil dissolved in 2 drachms of ether, added to 15 ounces of collodion, will cause it to work almost instantaneously.

Four drachms of syrup of the iodide of iron in 5 ounces of ether. This should be shaken at intervals during twenty-four hours, or until the ether has possessed itself of the greater part of the iodide of iron. To every ounce of collodion add 1 drachm of the ether. Great sensitiveness is obtained with the above.

A few drops of an ethereal solution of gutta-percha to the collodion and  $\frac{1}{2}$  grain of

nitrite of silver. To every 35 grains of nitrate of silver, of which the bath may be composed, great rapidity is obtained.

Four drops of the oil of cloves to each ounce of collodion, imparts great sensitiveness, and is an old stand-by when children are to be taken.

Fused nitrate of silver is not reliable ; it will work for a short time, but in consequence of the *nitrite* of silver which is formed by overheating in the fusing, it soon solarizes and fogs.

As all iodized collodion soon deteriorates, in consequence of its loss of hydrogen, and the formation of the iodide and bromide of ethyls, it is best to add 30 drops of benzine--hellenin or terpenole ; these keep the ether intact, increase the sensitiveness, and the collodion *never* turns brown.



THE PORCELAIN PICTURE.

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We are indebted to Mr. S. P. Van Loan, chief operator in the gallery of Mr. Bogardus, for his process for making the porcelain picture, for which he has a deservedly high reputation. We believe this process to be by far the most complete of any extant for producing those gems of photographic art. Mr. Van Loan has had much experience in the heliographic business, having engaged in daguerreotyping as early as 1839, and he has successfully pursued the sunlight art through all its changes from that day to this. For many years past he has made the negatives in the immense establishment of A. Bogardus, 363 Broadway, New York, a branch of the art in which none excel him.

Latterly he has turned his attention to the improvement of the porcelain picture, and has succeeded most admirably, as is shown by his results, which, in our judgment, surpass all others of the kind.

Heretofore all who have attempted to make this kind of picture, have labored under great

difficulty on account of the instability of the collodion ; but Mr. Van Loan has entirely overcome this defect, having worked out a formula that does not deteriorate by age, and the process throughout is simple, harmonious, and certain.

Without money or price he has given his process to the world, an act of generosity for which he deserves the gratitude of every photographer. We now give his own language.

2\*

VAN LOAN'S PROCESS.

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No branch of our business seems beset with so many troubles, and is so little understood, as is that of making the porcelain picture. The collodio-chloride or porcelain collodion is where the trouble all lies. Many receipts for its manufacture have been given in the journals and books of the trade, but none of them are reliable, except for a short time, the precipitation of the silver commencing almost from the moment of its contact with the alcohol and ether, and in a few days the mischief is complete, and there is no relief unless a new batch is made in the same way, and the same process gone through with. After two years constant study and experimenting with this collodion, I have discovered a new combination; the silver is not precipitated, and its keeping qualities are perfect; the strength and beauty of the pictures are wonderful, surpassing my utmost expectations.

I intend to dispose of this collodion or *collodio-chloride* to the trade at a fair price, as I desire a return for the time and trouble spent

in its discovery. My method of preparing the albumen, and mode of salting and coating the glass will be given below, and if attention and care be taken to do this part of the work thoroughly, no possible chance of failure will be had; and as a further incentive, I shall send *free* a two-ounce bottle of the collodion to such as desire it, as a test of the truth of my assertion. On the next page is the albumen process for the first coating.

## ALBUMEN PROCESS FOR THE FIRST COATING.

Take eight fresh eggs (*store eggs will not do*), carefully pour off the albumen, removing the germ and all particles adhering to it; allow no white particles to be seen in the albumen when held up to the light. I use a six-ounce graduate glass for the purpose; crack the egg on the edge of the glass, and when the albumen is all in, it can be held up to the light and all foreign matter removed; as each egg will give you about an ounce of albumen, you will have 8 ounces in all; measure 1 ounce of water, and dissolve in it 12 grains clean salt; add this to the albumen, and beat with an egg-beater until you can turn the dish up-side down without spilling any of the contents; put aside to settle during the night, then pour off the clean part into a graduate, and allow it to settle, draw a piece of tissue-paper over the surface before using, to remove bubbles and dust.

Clean the porcelain glass with rotten-stone, as for ambrotypes, and wash off the rotten-stone under the water tap, using a piece of cotton to assist in removing it; let the water drain off, and while wet pour on the albumen

from one corner carefully, in order to avoid bubbles or any unevenness in the flowing ; do not pour the excess of albumen back into the graduate, but into a refuse bottle, to throw away ; stand the glasses upon nails on the edge, not by the corner, flow as many as you can at a time, as the longer they are coated, the less liable they may be to blister or form bubbles on the surface in the final washing in hypo.

Coat the plates with the collodio-chloride as for a negative, and when perfectly dry, place them in the fuming-box, from five to fifteen minutes, according to temperature ; in warm weather less, in cold weather more ; they are then ready to place on the negative for printing.

Any weak toning-bath will do, print the same as for albumen paper ; perhaps a little stronger, and wash well before toning. Tone till slightly blue by transmitted light, wash again to remove toning and place in hypo.

The hypo. should be weak and containing one-quarter salt, and the plate left in only long enough to give the desired color, when remove, wash well, and hang up to dry.

In using ground glass, they must be left in

the hypo. for at least one-half hour, and washed for two hours in running water, or they will continue to blacken in the light ; the silver in the pores of the glass resisting the action of the toning and hypo. solutions.



THE DAGUERREOTYPE.

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A FRIEND called on me the other day, and finding me engaged in writing the following series of formulæ, inquired why I was doing it. Said he : "It looks to me like a waste of time, inasmuch as the Daguerreotype will never be revived again." I replied that it was a pleasure for me to waste a little time on the good old picture that I first made thirty years ago. Again, said I, it has been fifteen years since I have written up these formulæ, and to keep them fresh in my memory, I choose to write them again. Furthermore, many of our present photographers are unacquainted with the means for producing Daguerreotypes, and it will, no doubt, deeply interest them. Moreover, it is too valuable a treasure to remain buried ; it will be revived, and that, too, ere long. I am merely paving the way for its return, not to take the place of the photograph only, but of all other sunlight pictures. The ambrotype, melainotype, and all the rest of the fading,

worthless "types," have had their day ; the public have learned, by sad experience, how treacherous they have been, and the voice of the people to-day is : "Give us back the beautiful, imperishable Daguerreotype, let it cost what it may." It will come back, and that, too, in a very short time ; even before another year has passed, there will be established in New York a splendid gallery, whereat no other pictures but Daguerreotypes will be taken. In anticipation of this, and for reasons heretofore given, I make this appendage to my book of photographic formulæ.

## PREPARING THE PLATE.

The corners of the plate must be clipped off, and the edges turned down, otherwise it can not be properly cleaned and polished ; this, however, is done by the plate manufacturer, so that you can buy them already clipped and crimped.

For cleaning or scouring the plates, use double-refined rotten-stone, mixed with alcohol, and liquid ammonia, equal parts.

Fasten the plate on the block or clamp, so that it is secure ; then pour on to it a small quantity of the rotten-stone preparation, and lay on it a piece of soft canton-flannel, about two inches square ; place the fingers of the right hand on the flannel, and rub it with a gentle pressure and circular motion of the hand.

The flannel must be kept continually moist and well filled with rotten-stone, otherwise it is liable to scratch the plate. Continue the scouring process for thirty seconds, or until an even surface is obtained. When the plate is sufficiently scoured remove the cloth, and blow on it until it is dry.

Now take a clean piece of cloth, the same

as the first, and wipe the rotten-stone all off the plate ; let this also be done with the circular movement of the cloth, and a very slight pressure ; then remove the plate from the clamp, and wipe the edges so as to avoid scratching the plate.

Return the plate to the clamp, and with the third piece of cloth, the same as the others and with the same motion, remove all foreign matter from its surface, keeping it moist by breathing on it very frequently while rubbing it. As soon as the plate appears to be perfectly clear, lift up the cloth, and by breathing on it you will be able to determine whether it is properly cleaned or not ; if not clean, streaks will be visible while the breath is on the plate ; in this case, repeat the last process, until the breath passes from the plate perfectly uniform.

## POLISHING THE PLATE.

For this purpose a rotary buff is preferable. Hand-buffs are frequently used, and with tolerable success, when the atmosphere is warm and dry ; but in damp weather, reversing the motion of the buff changes the nap of the skin, and deposits rouge on the plate, which retards sensitiveness, and causes roughness or a dingy effect when the plate is finished. This difficulty is avoided by using the rotary buff, if properly managed.

## PREPARING THE BUFF FOR USE.

If new, examine the surface of the covering closely, and if there are any large knots or bunches in the skin, pick them out with the point of a knife, or rub them down with sandpaper. After the surface has been carefully attended to in this respect, put the wheel in quick motion, and sandpaper the buff all over for one or two minutes ; then brush it thoroughly with a stiff brush, and dust rouge all over it ; then wipe it thoroughly with several clean canton-flannel cloths, after which brush it thoroughly again (occasionally reversing the motion of the wheel), and dust

rouge over it again, and diffuse it evenly all over the surface with a clean flannel held on to it while the wheel is in motion. It may be necessary to repeat these operations several times before the buff is in good order.

After the buff has been well broken in (as it is termed), brush it thoroughly every morning before using it, and rouge it the same as at first. The flannel cloths with which the buff is cleaned may be used successfully until the nap is worn off, or they are filled with dirt; but use a clean cloth always for the last cleaning or finishing.

## BUFFING OR POLISHING THE PLATE.

Secure the plate firmly in the buffing clamp, and, with the wheel in full motion, hold the plate on to the wheel with a moderate pressure, turning it occasionally so as to polish lengthwise, and continue to change it, first one way and then the other, until the final finish.

Be careful not to let the breath come in contact with the plate while buffing it.

## GALVANIZING THE PLATE.

This is done with a simple one-cup battery, which can be obtained from any stock dealer, and will cost in the neighborhood of \$3 ; or any coppersmith can make one. The battery is simply a copper cup made of heavy sheet copper, braised, instead of being soldered, 4 inches high by  $3\frac{1}{2}$  inches diameter. To this should be soldered a strip of copper half an inch wide by 6 inches long ; to the end of this attach a plate of pure silver about 4 x 6 inches, thick or thin as can be afforded. Now fit a piece of thick glass plate to the bottom of the copper cup ; this may be done by taking a square plate of glass and



breaking off the corners little at a time with nippers.

Now take a Morse telegraph zinc, cut off the horn, and solder a strip of copper to it ; this strip may be half an inch wide, and 9 inches long ; across the other end of this solder another strip a quarter of an inch wide, joining it at its centre, and crossing the other at right angles ; let this be of sufficient length to rest across the top of the solution cell, which may be of glass, porcelain, or photographic ware, 8 inches deep by 10 inches long, and  $3\frac{1}{2}$  inches wide. Set the copper cup by the side of the cell, and bend the strip to which the silver plate is attached, so that the plate is suspended in the cell near the side next to the cup. Now put the glass plate in the bottom of the cup, and set the zinc on it in the centre of the glass, and bend the strip attached to it over until the cross-strip rests on the top of the cell ; on this cross-bar the plates are hung while being galvanized.

The hooks for suspending the plates in solution may be made of narrow strips of sheet copper, split and spread at the lower end, and the prongs turned up at the end so as to catch the plate, and a hook may be soldered on to

rest on the cross-bar. The hooks, also the cross-bar where the hooks hang on it, must be kept bright and free from wet or foreign matter; also the prongs on which the plate rests.

## SILVERING SOLUTION.

Make a saturated solution of half a pound cyanide of potassium, and to this add as much chloride of silver as it will dissolve ; then add 1 quart of water, pour it in the cell, then fill the copper cup to the top of the zinc with water, and add to it a small quantity of sulphuric acid ; the battery is now ready for use.

The zinc must be kept well amalgamated with mercury, otherwise it will fail to work well, and will soon decompose in the acid. To amalgamate the zinc, brush it over with sulphuric acid, one part water, eight parts acid ; then rub on the mercury with a brush.

## GALVANIZING THE PLATE.

When the plate is nicely polished, lay it on the forked holder carefully ; blow the scum (if there is any on the top of the bath solution) to one end of the dish, and while you are blowing let the plate down into the liquid, and catch the hook on the cross-bar. Let it remain for thirty seconds, then raise it and examine it ; as soon as it is a deep sky-blue, just beginning to whiten, remove it from the

battery, holding it by one corner, with nippers, under a running stream of water until the cyanide is thoroughly washed off; then dry it by holding a spirit-lamp at the back, beginning to heat the top first, and blow on the face of the plate, forcing the water downward to one corner. The plate is now ready for the last polish, which must always be done just previous to coating it.

## COATING THE PLATE.

For this purpose it is necessary to have two coating boxes, one for iodine, and the other for bromine.

In one of these boxes put 1 ounce of resublimed iodine, mixed with 2 ounces of calcined white marble. The marble serves two purposes ; first, it prevents the iodine from shaking up into one end of the box ; and secondly, it has a tendency to prevent moisture in the box. In the other box put the bromine prepared in the following manner :

Take 8 ounces of pure slacked lime, that which has been slacked in a garret or dry room, and has lain in a slacked state for several months, is best ; add to the lime 8 ounces of common table salt ; before combining them, dampen the salt with water until it is quite moist ; then combine and mix them well together ; pack the lime and salt in an earthen bowl, or on a plate ; set it in a dry room for two or three days, then powder it nicely, put it in a ground-stoppered bottle, and add 1 ounce of pure German bromine ; shake it very little, then set it by until the bromine is thoroughly combined with the lime. After it has

stood twelve hours it may be shaken with safety, which will facilitate the combination. This preparation is commonly called "quick-stuff;" put it in the bromine coating-box, and place both in the dark room.

The plate must always be polished the last thing before coating it, so as to have it warm when it is placed over the box.

## SENSITIZING THE PLATE.

Pass the plate directly from the buff to the iodine box, and expose it to the fumes until it is a deep yellow, verging on a pink color ; then place it in the quickstuff, and there deepen the color to a dark purple ; then re-coat over the iodine about one-half as much as at first ; without examining it, place it in the plate-holder, where it must be entirely secluded from light.

## TIMING IN THE CAMERA.

The arrangement of the sitter, adjustment of the focus, and all similar preparations, are the same as if you were taking an ambrotype or a photograph, and the time required in the camera is about the same.

## MERCURIZING THE PLATE.

This operation must also be performed in a dark room, and redistilled mercury should be used. Put about 4 ounces of redistilled mercury in the mercury-bath, and place under it a spirit-lamp with a small burning flame, giving just sufficient heat to fill the bath with vapor.



Remove the plate from the camera, and lay the holder on the mercury-bath ; then draw the slide, and expose the plate to the mercurial vapor about three minutes. This operation must be performed with great care ; it is the developing of the picture, and its tone and beauty depends very much upon its proper management in this process.

REMOVING THE SURPLUS CHEMICAL FROM THE  
PLATE.

As soon as the plate is mercurialized without exposure to strong light, bend one corner of it with the nippers, so as to form a small shoulder to prevent the finishing solutions from dripping off when it is held by the nippers.

Holding the plate by the corner with the nippers in one hand, with the other pour over it a strong solution of hyposulphite of soda; as soon as the plate is clear, or the chemical is all removed, wash it well under a gentle stream of water; and while it is wet, pour on it as much of the gilding solution as will remain on it without dripping off (holding it in the nippers by the bent corner), and heat the solution gradually until it nearly boils, by holding a spirit-lamp under it. As soon as the shirt-bosom and collar of the subject is white, and the picture is clear and distinct, pour off the solution, wash the plate well, and dry it by holding the spirit-lamp at the back of it, and blowing the water downward until it is dry.

## MAKING THE GILDING SOLUTION.

To 1 pint of pure water add 60 grains of hyposulphite of soda, and dissolve. In another pint of water dissolve 15 grains of pure chloride of gold, and mix the two together by pouring the gold solution into the other, in small quantities at a time, and shake well while combining them, otherwise the gold will precipitate. Filter before using it.

## COLORING THE DAGUERREOTYPE.

The Daguerreotype is susceptible of being colored, but the delicacy of the surface renders it necessary to perform this operation with great care. The colors are used dry, and applied with a fine sable-hair pencil.

## CASING THE DAGUERREOTYPE.

White plate-glass is best for this purpose. Clean the glass well, then place the mat on it, and the plate on the mat, having rendered all perfectly free from specks, lint, and dust; bind them together firmly with binding muslin, then put on the preserver, case it, and the work is finished.

## PHOTOGRAPHIC CHEMICALS.

## TO MAKE CHLORIDE OF GOLD.

OBTAIN from any stock dealer or druggist  $\frac{1}{4}$  pound nitric acid, pure, and 1 pound hydrochloric acid, also pure.

Procure 10 pennyweights of fine gold ; this you may get by mail or express, or your stock merchant will buy it, and send it to you with other goods. The gold will come to you in a thin, narrow strip, which you will clip with scissors into narrow or small particles. You will also provide yourself with a half-pint glass flask, a half-pint porcelain evaporating dish, and a sheet-iron evaporating pan, of suitable size, all of which (the apparatus) will cost about \$1.15. Before dissolving gold in the flask, fill it half full of water, and set it on the sand-bath, over a heat that will boil the water ; this will both temper and test the flask. If it will stand this test, there is no danger of its breaking in dissolving gold in it.

Put your pieces of gold into the flask, say 10 pennyweights ; then mix in a small bottle

nitric acid 1 part, and hydrochloric acid 4 parts. For the 10 pennyweights of gold mix 1 ounce of nitric with 4 ounces of hydrochloric, and pour one-half of it in the flask with the gold, and place the flask on the sand-bath, covering the neck of the flask over with a small piece of glass, to prevent the gold from flying out while it is undergoing dissolution.

Use a moderate heat while the gold is dissolving, not more than a quarter as much as would be required to boil water.

As soon as the acids cease to act on the gold, if any remains undissolved, add more of the mixed acids; and continue to add little at a time, as often as it stops acting on the gold, until all is dissolved.

As soon as the gold is all in solution, remove it from the sand-bath, and let it cool. When it is nearly cold, add to it about as much water as there is of the gold solution, and evaporate it over the sand-bath about one-half; then remove it, and pour the solution into any convenient glass or earthen dish, and rinse the flask with several waters, which you will pour into the gold solution.

Now prepare a paper filter, in a small glass

or porcelain funnel ; place it in the flask, and filter the gold back into the flask. After it is nearly done dripping through, pour a few drops of water at a time in the filter, in such a manner as to wash the gold all out of it, and until your solution of gold is increased considerably more than it was before water was first added to it. Then return it to the sand-bath, and with a gentle heat, but much stronger than at first, evaporate it down two-thirds or more.

This being done, pour the solution into the evaporating dish, and add  $1\frac{1}{2}$  pennyweights of fine table salt for each pennyweight of fine gold dissolved. Place it on the sand-bath with a very moderate heat, stir it well and often, and as soon as crystallization begins, stir it continually (with a glass rod or slip) until it is perfectly dry, then cool and bottle it.

From this you will have 720 grains, or 48 fifteen-grain bottles of chloride of gold, which will do you good service.

## TO MAKE NITRATE OF SILVER.

Dissolve pure metallic silver in nitric acid (commercial acid will do as well), in a glass flask, similar to that recommended for dissolving gold. It will require about 1 fluid ounce of acid to each ounce of metallic silver, but add at first in the ratio of 8 ounces of acid to 10 of silver, and place the flask in the sand-bath, over a gentle heat, and let it remain for two or three hours, or until the acids stop acting on the silver; as soon as the action stops, if undissolved silver remains in the flask, remove it from the sand, and let it cool a little; then drain off the liquid into any convenient photographic ware, glass, or porcelain dish; add a little nitric acid to the metallic silver remaining in the flask, and place it on the sand-bath, as at first, and when the action of decomposition ceases, pour off the liquid again, and add a little more acid to the remaining metallic silver, and so on, until all is dissolved. By this method you will avoid an excess of acid.

Allow the solution to stand until it is entirely cold; then add to it about half as much water as there is of the solution, and filter it



through asbestos, broken up, and placed in the neck of the funnel. When filtered, put it in an evaporating dish, and place it on the sand-bath over a strong heat, and evaporate it down until, by looking sharply, you can detect a light scum on the top of the liquid. As soon as the scum is visible, remove it to a cool place, and allow it to stand and cool gradually until nearly cold. After it is nearly cold place it on ice, or in the coldest place you can find ; cover it over, and let it remain untouched twenty-four hours. Now provide a funnel and bottle that it will fit nicely, place it by the dish containing the silver, which will have congealed in large crystals ; dip the crystals all out of the liquid into the glass funnel. After they have done dripping, take about an ounce of water in a teacup or tumbler, and dash it quickly all over the crystals. After it is done dripping, repeat the process until you have washed the crystals with the third water. As soon as they are entirely done dripping, pour them on an earthen or glass plate, spread them out and place them on a warm stove to dry.

Pour the drippings out of the bottle back into the original liquid, add to it about half of

its bulk of water, and evaporate the same as at first, and repeat the process all through. It may be necessary to evaporate the third time, before you will have crystallized all of the solution; even then there will be a residue, which may remain over and go into the next batch, or it can be precipitated a chloride, and placed with the refuse silver.

If at any time after evaporating and coating you fail to find an abundance of crystals, it is because the liquid was not sufficiently evaporated. On the other hand, if evaporated too much, the crystals will be small, thin, and troublesome to wash.

If you wish to render your nitrate of silver very pure, and free from nitric acid, redissolve the crystals in an abundance of water, evaporate, and proceed throughout the same as at first.

## NEGATIVE VARNISH.

To 1 gallon of alcohol add 1 pound of white shellac, and shake it at intervals until the shellac is all dissolved. To facilitate the combination, break the shellac in fine particles before putting it in the alcohol. After the shellac is well dissolved place the bottle (well corked) in strong sunlight, and let it remain ten days, then decant the clear varnish, pour the sediment in a small bottle, and when it is again thoroughly settled, pour off the clear varnish, and throw the sediment away. This varnish is simple to make, and all that can be desired for photographic purposes. The white shellac can be obtained at any of the New York stock houses.

HOW TO BEAT THE WHITE OF AN EGG FOR  
ALBUMENIZING GLASS.

Break 2 or 3 ounces of glass in small pieces, and put them into a strong pint bottle ; put the white of the egg into the bottle with 1 ounce of water, and shake it until the foam fills the bottle. Allow it to subside, then fill the bottle with water, shake well, add the ammonia, filter, and it is ready for use.

## MOUNTING PHOTOGRAPHS.

If large prints are to be mounted, the usual method of pasting one at a time is proper ; but if a large number of cards are to be mounted, take them from the water in which they were washed, placing them one by one on a clean glass, face downward, then crossing them every way, top of each other, keeping the pile well rounded and even. After the prints are all placed on the glass, tip it a little and let the water drain off two or three minutes, then, with the paste-brush, paste all over the pile, then take up one of the prints that has been pasted with the point of a knife, or sharpened stick, and place it on the mount, and continue to take those that have been pasted all over ; when there are no more, paste over the pile again, and continue in this way until all are mounted.

## KURTZ'S FILTERING PROCESS.

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A new method of filtering silver-baths and other solutions, requiring a long time for filtration.

Provide a bottle, or demijohn stripped of its covering, and large enough to contain the entire solution to be filtered. Pour the solution from the bath into the bottle, and wash and dry the bath in the usual manner, and set it in its place, but in a perpendicular position. Prepare a board cover for the bath with a conical hole in the centre of it, in which fit well a large funnel containing the filter; nail firmly two brackets, one at each side of the bath, and six or eight inches over it, and fit a board about one foot wide on the brackets; in the centre of the board, directly over the funnel, make a round hole large enough to allow the neck of the bottle containing the solution to pass through it, and rest firmly on the bilge of the bottle. Look well that the funnel is firm, and the bottle well fitted, and see that it rests firmly in the aperture in the board.

Remove the cork from the bottle containing the solution to be filtered, and turn the bottle bottom upward over the funnel, and adjust it firmly in the aperture in the board resting on the brackets.

Arrange things so that the mouth of the bottle will extend one inch below the surface level of the funnel. The solution will guggle out of the bottle until it rises to its mouth, and then stop until the mouth is again uncovered ; in other words, the funnel will remain filled to the mouth of the bottle until the solution is all out.

One would suppose that the great weight of the solution would force it out of the bottle, and overflow the funnel ; that is impossible, for as soon as the solution in the funnel rises above the mouth of the bottle it totally excludes air, and can not discharge a single drop while in that state.

Those having large quantities of silver solutions to filter will gain much by adopting this method, which, I believe, originated with Mr. Kurtz, one of our most ingenious, successful, and liberal New York photographers. I got it from Mr. Hugh O'Neil, the partner of C. D. Fredricks, Esq. ; he says it beats all other

modern inventions. It is an improvement in filtering worth to any photographer three times the cost of this book, and is published by the particular request of my generous friend O'Neil, with his assurance that there would not be the least objection on the part of Mr. Kurtz.



# SKETCH OF CHARLES D. FREDRICKS, ESQ.

WITH A PHOTOGRAPH.

*(From Humphrey's Journal.)*

THE subject of our sketch this month was born in the city of New York, in the year 1823. While yet a lad his father sent him to Havana, where he resided one year, and acquired a knowledge of the Spanish language, which afterward proved of great service. On his return he resumed his studies, intending to complete his collegiate course, but the financial crash of 1837, which ruined so many, swept away his father's entire fortune, and compelled young Fredricks to leave his books and seek some occupation. He obtained a situation with a South Street firm, where he remained two years, and then engaged in the respectable banking house of Cammann & Whitehouse, of Wall Street.

Here he would probably have continued for some time, had he not received, about the year 1843, most glowing accounts of the prospects of business in Venezuela, from his brother, who resided there. Fired with the idea of a speedy fortune which would await him, he determined to purchase an assorted stock of goods, suitable to that market. With these and \$400 in cash, his entire fortune at the time, he set sail for Angostura, on the Orinoco. Previous to starting, however, and inspired by one of those happy thoughts which so often influence a man's entire career, he reflected that, in the event of the failure of his mercantile venture, it would be wise to have some other resource. So he called on Mr. J. Gurney, made arrangements to take some lessons in Daguerreotyping, and purchased a camera, and a small stock of plates, cases, etc.

On arriving at Angostura he went through the usual formalities of paying duties on his merchandise; but when the Daguerreotype apparatus was reached, the perplexed knight of "red tape," never having seen one of the machines before, refused to let it pass without a heavy duty. This was rather more than Mr. Fredricks was willing to bear, and he had concluded to reship it to New York, when an accident occurred which caused him to change this intention. While making arrangements for the transportation of his

merchandise up the river to San Fernando, a little child of the principal merchant of the place (whose guest he was) died. Hearing from some of his clerks of the circumstances connected with the detention of "the machine," he immediately went to the Custom House, without informing Mr. Fredricks, paid the duties, and had it carried to his guest's room. He then requested Mr. Fredricks to take the likeness of his dead child. Our young American, though somewhat diffident as to his ability to succeed on first trial, answered boldly : "*I'll try.*"

The news of the, to them, novel experiment soon spread about the town, and caused the greatest excitement. At the hour appointed for taking the likeness the house was crowded with the principal inhabitants of the place, anxious to view the operation. A Daguerreotype had never been seen by them before, and but few had heard of the invention.

It is needless to add that the picture was a success in every way. The bystanders were so much impressed by the wonderful invention, that they offered our enterprising countryman the most tempting inducements to remain, to take the pictures of every one in the place. After mature deliberation he agreed to send his merchandise up the river in his brother's charge, and remain awhile with them, in compliance with their desires. Finding, at the end of three weeks, that he had made \$4,000 by his pictures, he promptly made up his mind to travel with "that machine." Having meanwhile exhausted the small stock of materials he had brought with him, he ordered a heavy stock from New York.

While waiting for it to arrive he journeyed to San Fernando, to look after his mercantile venture, and communicate his new intention to his brother. The merchandise was rapidly disposed of, and the proceeds converted into hides, which were shipped to the New York market.

On reaching Angostura he found that the Daguerreotype materials had arrived, and he immediately recommenced the taking of portraits.

From Angostura he visited the islands of Tobago and St. Vincent, where he met with great success. Returning to Angostura, he made the acquaintance of Don Pedro Ayres, the Governor of the province of Rio Negro, a wild region, inhabited by many Indian tribes. Being desirous of visiting Brazil, and there being no coast commu-

nication, the Governor suggested the plan of going up the Orinoco, and down the Amazon, guaranteeing to take some thousands of dollars worth of Indian portraits, and also to forward Mr. Fredricks and party to Brazil. This voyage occupied nine months; was a continued series of wild adventures, hardships, and exposures, and if fully related would read like a romance. Mr. Fredricks still kindles with a fresh enthusiasm when he relates the story of his travels, and describes dangers encountered and surmounted as vividly as though they had happened yesterday.

At one point in ascending the Orinoco they reached the rapids of Maypures, where it was necessary for the Indian attendants to unload the canoe, pass the same over the boiling rapids, and reload at a point some miles above. The unloading was accomplished at dusk, and the baggage placed in a hut built of palm-tree branches, where the brothers slung their hammocks and retired for rest. On rising the next morning they found, to their great horror, that the Indians had disappeared, together with the canoe and all the provisions, except a little sour mandioco, an article of Indian diet resembling sawdust, both in appearance and nutritive properties. Being entirely unprovided with sporting implements, they were compelled to subsist on this meagre diet, and wait in hopes of hailing a party of passing travelers. They were considerably excited one morning on finding the roof of their hut lined with snakes, which it took several hours to kill with their machetes, a long-bladed knife worn by travelers. The discomfort of their position was further increased by the swarms of venomous insects and alligators that infest these vast primeval regions.

After remaining twenty-two days here, and suffering severely from fever and ague, a party of government officials and soldiers, on their way from Caracas, made their appearance. This welcome assistance arrived none too soon; and our sick and almost famished traveler reached the mouth of the Amazon in such a weak condition, that he was ordered to leave immediately for New York, by advice of the physician.

Love of adventure, however, and the solid prospects of gain, brought him back to Para the next year. Here he established a gallery successfully for six months, then embarked for Marinhã, where the same good fortune attended him. From this place he made another flying visit to New York, returned to Pernambuco;

visited Bahia, Rio Janeiro, Rio Grande, and Porto Allegre. From Porto Allegre he crossed the province of Rio Grande, in company with George A. Brandreth, son of Dr. Brandreth, of this city, and Edward Hopkins, who were on their way to Paraguay, transporting his baggage in primitive style, on ox carts, and stopping at each village long enough to take likenesses. Some of the poor villagers, not over provided with *cash*, traded a *horse for each picture*. So that our photographer arrived at his journey's end in patriarchal style, surrounded by an immense drove of horses, which he finally sold at \$3 each.

At the village of San Borja he met the naturalist, and companion of Humboldt, Bonpland, and embarked with him in a small boat, with a view of descending the river to Montevideo and Buenos Ayres. On the voyage, Bonpland paid a visit to the Governors of Corrientes and Entre Rios; the former of whom desired Mr. Fredricks to take his Daguerreotype, and asked Bonpland what remuneration was proper. Bonpland replied, that none was required, it being a matter of compliment to the Governor. He was not to be put off in this manner, however; and as the boat was about leaving the shore, several Indians appeared, leading a large tiger, which they chained securely in the forward part of the boat, saying: "*A present from the Governor to the young American!*" This tiger proved to be "an elephant" of prodigious size, and was a source of terror to the more timid. Bonpland was considerably disgusted and alarmed, but there was no way, in courtesy to the Governor, of refusing the gift, so they were compelled to take the novel traveling companion along. He afterward became a great pet of his master, who spent several hundred dollars on him, with the intention of bringing him to New York. Tiger, however, died in Buenos Ayres, notwithstanding the healing properties of an entire box of "Brandreth Pills," which was administered!

After remaining in Buenos Ayres and Montevideo about one year, he embarked for New York with a view of proceeding to Paris, and opening an American gallery; the French being behind the Americans in the Daguerreotype art. He reached Paris in 1853, and immediately started in business. He was the first person who made life-size heads, and employed artists to finish them in pastel. After remaining in Paris six months, and calculating that the life-size heads, with French artists to finish them, would

be something novel, and *take* in New York, he determined to establish himself permanently in that city. He arrived there at the end of 1853, and showed specimens of his work to J. Gurney, and proposed a partnership, which was accepted, and attended with great success. This partnership was dissolved in 1856, when Mr. Fredricks finally established himself at his present location, in Broadway, opposite the Metropolitan Hotel. During the crisis of 1857, having a large number of artists under engagement, he sent some of them to Havana, and established a branch house, which has been successfully continued.

The photographic community is indebted to Mr. Fredricks for bringing to this country, under contract, many talented artists, such as Santain, Nehlig, Piot, Wüst, Eberhard, Herlich, Schultz, Constant Mayer, etc.

We do not wish to close this article without referring to his able partner, Mr. Hugh O'Neil, who is widely known as one of the best photographers which this country has ever produced. Mr. John De Bancs, the celebrated article "poseur," still continues with Mr. Fredricks, and none but first-class artists are employed at his establishment.



## CONCLUDING REMARKS.

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IN bringing to a close my humble efforts to collect material, and arrange this system of practical Photography, which I believe will materially aid the larger portion of operators in that branch of art, and thereby advance the art, I deem it proper that I should tender my thanks to the Messrs. Hugh O'Neil, C. D. Fredricks, J. Gurney & Son, Van Loan, James L. Forbes, and Kurtz, for the efficient aid they have rendered me in this undertaking.

Let it no longer be said that photographers are a selfish, penurious class of men, especially those above named, for my researches into their "dark chambers" during the last two months, and the generous manner in which they have invariably yielded to me their *genuine* formulæ, have clearly proven the contrary.

More magnanimous men I have never met.

It only remains for me to state, that the formulæ herein given are precisely those used at present. The negative portrait accompanying this work was made at the establishment of C. D. Fredricks & Co., by Hugh O'Neil, precisely as herein described, excepting that he does not albumenize his glass. The printing, mounting, and finishing was done by myself, following the recommendations herein given *to the letter*. In getting out the requisite number of prints for the edition, I have used 150 sheets Pearl Paper,  $6\frac{3}{4}$  ounces nitrate of silver, 90 grains of chloride of gold, and 5 pounds hyposulphite of soda.

Some of the prints are a little too light, while others are rather darker than is desirable, which is owing to three causes: 1. Extremely bad weather. 2. The whole number was hurried off in one week. 3. I had not printed a photograph before these in five years.

Notwithstanding the trifling discrepancies, the likeness is good of Mr. Fredricks, and places beyond a doubt the excellence, cheapness, and simplicity of Mr. O'Neil's method of working.

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DEAR SIR: Having found "Humphrey's Collodion Gilding," as prepared by you, to meet every requirement, I will, at all times, take pleasure in recommending it to my brother photographers as the best article for preserving Glass Negatives and Ambrotypes. Wishing you the success you so justly deserve, I remain

Your obedient servant,  
J. GURNEY.

NEW-YORK, April 6th.

DEAR SIR: I have given "Humphrey's Collodion Gilding" a trial, and find it better than any of the varnishes I have before used. I take pleasure in recommending it to others as one of the most desirable articles for preserving Glass Pictures, and as being fully worthy of their confidence.

Yours truly,  
M. M. LAWRENCE.

CANANDAIGUA, N. Y., April 8th.

DEAR SIR: "Humphrey's Collodion Gilding" settles the long-contested point as to the durability of collodion pictures. I consider it not only the best, but the only perfect protection and finish for the surface of the collodion plate, whether positive or negative.

Respectfully yours,  
M. FINLEY.

DEAR SIR: We would say that the sample of "Humphrey's Collodion Gilding" which you furnished us with has given entire satisfaction, and we do *unhesitatingly* pronounce it the best article we have ever used for the Protection of Glass Negatives and Positives.

Respectfully yours,

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299½ Washington Street, Boston.

ALBANY, N. Y., March 21st.

DEAR SIR: For some time past I have used "Humphrey's Collodion Gilding" with the most eminent success, and in no instance have had cause to complain; but on the contrary, find it all that it has been represented. Your "recently improved" manufacture surprises me, for I did not think it possible for any improvement to be made over that I was using. Please forward half-a-dozen bottles without delay; I cannot afford to be without it in my establishment.

Truly yours, etc.,  
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"Humphrey's Collodion Gilding" is the best Varnish I ever used, and I have tried all kinds.

J. F. RYDER.

It is the best article known to preserve Ambrotypes or Negatives.—W. M. GARDNER.

It is the best article I ever used. I consider it imperishable.—C. W. GREY.

I am pleased with it. I put up no pictures without it.—L. W. KEEN.

It is the only varnish that is suitable for Melanotypes; I have tried all others in market.

W. H. DESHONG.

I am pleased with Humphrey's Collodion Gilding. I exposed a glass picture finished with it, on a roof facing the sun, for one week, to the combined influence of the hot sun, a severe snow-storm, rain, and two hard frosts, one of them while it was covered up with snow, and it kept bright as at first.

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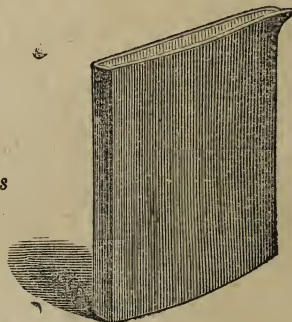
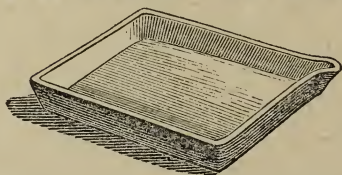
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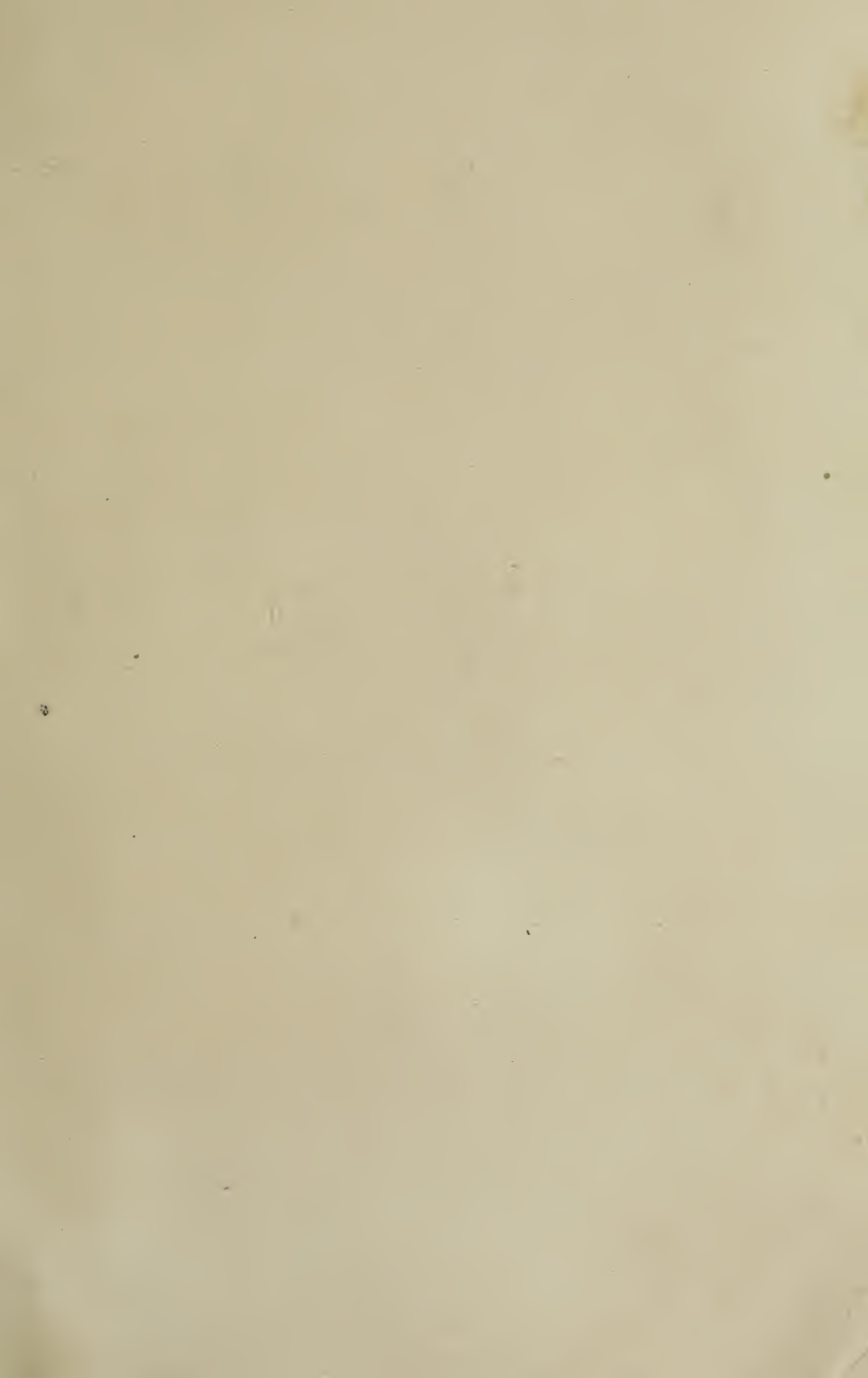
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